

Response to KING 5 inquiry on AY-102 leak assessment report 4.17.13

Why did WRPS not investigate or ignore strong indicators that AY-102 was leaking a year before the announcement came from DOE in October 2012?

The events you describe in your various questions were investigated and determined unlikely to be caused by a leak.

As for the October 2011 events, experience gained over decades of tank farm operations led us to believe that a small amount of rainwater, not waste, was collecting in the AY-102 annulus. This was based on recent heavy rainfall, the discovery of water intrusion pathways, known low levels of radioactive cross-contamination between the primary tank and the annulus, and readings from the leak detection system.

- There was no threat to the environment, the public or our workers. Because of the small amount of any liquid indicated by the ENRAF, its location within the sealed annulus, and the double-filtered ventilation system on the annulus, waiting until a scheduled video inspection in August, posed no appreciable risk.
- Worker safety was a strong motivator. Making an unscheduled annulus entry into a tank holding 850,000 gallons of high-level radioactive waste, when a later inspection was already scheduled posed an unnecessary risk to our employees.

Subsequent events involving a broken ENRAF in May and June 2012 did not provide a basis for altering that decision.

- Contamination readings found on the drum and reel were well below what would have been expected from tank waste.

Question: “Recommendations by engineer Gary Tardiff that were not heeded of a camera being inserted. Why was earlier information ignored until August 2012 when video inspection revealed leaks?”

Recommendations are not ignored; they are documented with a formal “Problem Evaluation Request” or PER and are thoroughly evaluated. Gary Tardiff wrote a PER requesting a camera be inserted in the AY-102 annulus to try and pinpoint the source of water in the annulus. The PER went through the formal evaluation and disposition process and it was decided to not redirect resources to conduct a video inspection of AY-102 at that time.

A video inspection would have taken several days of work planning to prepare employees for a hazardous job and, by the time the camera could be inserted in the annulus, the ventilation

system would have dried out the moisture, making it difficult to determine the source of water intrusion.

Instead, it was decided to combine two video inspections into one -- the requested video inspection for water intrusion with a routine visual tank integrity inspection scheduled for August 2012.

Visual inspections of AY-102 were performed on August 1 (Risers 87 and 89), and August 5, 2012 (Risers 77 and 80). The selection of these risers was based on a recommendation identified in the PER written by Gary Tardiff. Inspections using Risers 77 and 87 identified unexpected material on the annulus floor that was not present in earlier inspections. After these initial observations, additional risers were selected as part of a comprehensive annulus visual inspection with emphasis placed on the annulus floor and refractory. Eventually ten risers were accessed to complete the inspection.

The tank was not confirmed as leaking until the material in the annulus was sampled and a laboratory analysis of the material was completed in October 2012 and it was determined that the material was consistent with the waste in the primary tank. The formal Tank Leak Assessment process was conducted in parallel with the sampling and laboratory analysis. The Leak Assessment Report was completed and issued shortly after the laboratory analysis results.

Question: “AY-102 secondary shell (annulus) does not have the same ventilation controls as the primary tank ventilation system. There are no filters.”

Worker safety is of the utmost importance at Hanford. At no time were tank farm workers exposed to unfiltered air from tank AY-102, either from the primary tank or the annulus.

The AY-102 ventilation system diagram in the Leak Assessment Report on page 4-65 shows that the annulus ventilation system is exhausted through not one, but two, High Efficiency Particulate Air (HEPA) filters and the exhaust is monitored for the presence of radioactive contamination. The filters meet all industrial standards for removing radioactive contamination from the exhaust air.

Air emissions are strictly regulated by the Washington State Department of Health, which permits the primary ventilation systems at the tank farms. We encourage you to contact the Dept. of Health with questions on air permits at Hanford.

Question: “Lack of an Alarm Response Procedure for ENRAF in annulus in alarm”

There is, and has been, an established Alarm Response Procedure (ARP) for the ENRAF system.

If this question is referring to a stop-work called by a tank farm worker late in the morning of Sept. 27, 2012, the appropriate procedure was in place and implemented correctly by

employees. The questioning worker was briefed on the existing alarm response procedure and the stop-work was lifted later that afternoon.

Our workers are highly trained, highly skilled and highly motivated to work safely. WRPS workers are encouraged to have a questioning attitude and to stop work if they don't understand the procedures.

Question: “Who was in charge of the Leak Assessment Team and why was no one directly involved interviewed? Why wasn't Dave Strasser interviewed by the team?”

Managers directly involved in work in AY tank farm, including Dave Strasser, were interviewed for the Leak Assessment Report.

The list of authors at the front of the report is not a comprehensive list of everyone who contributed to the report. The Leak Assessment Report is a public document developed by a WRPS team led by its Engineering organization with the assistance of numerous subject-matter experts.

The Leak Assessment process involved dozens of employees and thousands of hours of work, including nights and weekends, over several months, and was conducted in parallel with the AY-102 sampling and laboratory analysis. The report was issued shortly after the laboratory analysis confirmed that the material in the AY-102 annulus was waste from the primary shell.

The formal Leak Assessment process was developed by DOE, Ecology and contractors to change the status of a Hanford tank from “sound” to “assumed leaker.”

Question: “What exactly did WRPS tell DOE and Ecology and when?”

DOE and Ecology were notified on Oct. 13, 2011, shortly after the wet ENRAF was found and were kept informed of follow-up actions related to ENRAF maintenance and repair.

Ecology, as the main state regulator, is intimately involved in deciding the course of the Hanford cleanup mission. Legal commitments, known as Consent Decree milestones, are attached to timelines and used to direct cleanup activities.

The legal commitments DOE has to meet these Consent Decree cleanup milestones, along with risk reduction, worker safety and funding, form the basis for deciding what work is done in the tank farms and when.

Ecology is part of that decision-making process and is continually kept informed of issues and progress.

We strongly encourage you to contact the Dept. of Ecology with questions on permits and Consent Decree milestones.

Question: “How much did work to date on the Power Distribution Plant cost (related to using AY-102 as a waste feeder (to WTP))?”

We can find no reference at Hanford to a “Power Distribution Plant.”

A major part of WRPS’s mission, along with keeping the tank farms safe, is preparing the infrastructure for feeding tank waste to the Hanford Waste Treatment Plant.

Design work and procurement of some equipment for the infrastructure for the Waste Feed Delivery system was completed for the AY/AZ tank farms, but no physical work specific to AY-102 was done in 2012

AY-102 was going to be one of at least 15 double-shell tanks to be used to feed waste to the WTP. Design work done to support AY-102’s role as a feed tank will be used to support the other feed tanks.

Question: “Why such a reliance within the report on the CAMs when they have been found to not be effective in the annulus?”

The CAMS are not relied upon for leak detection. A separate leak-detection system is used to find leaks and that system did not indicate a leak from the primary tank of AY-102

The ENRAF and CAM showed radioactive contamination in the annulus, but the annulus in this tank had been contaminated for many years because of a tie between the primary and annulus ventilation ducts.

Question: “How much does WRPS estimate that AY-102 has leaked so far?”

The estimated leak volume at the time of the Leak Assessment report issuance in October 2012 was 190 – 520 gal; as significant portion of the liquid has evaporated, leaving about 20 – 50 gal of drying waste. There has been no appreciable change since then.